STATISTICAL MECHANICS OF THE EINITE HEISENBERG MODEL

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Anomaly in Electrical Resistivity of Ferromagnetic Metals near the Curie Point

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Anomaly in Electrical Resistivity of Ferromagnets near the Curie Point

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STATISTICAL MECHANICS OF THE EINITE HEISENBERG MODEL*)

(川端親雄．鈴木増雄)

The eigen-functions and eigen-values of finite one-, two-, and three-dimensional Heisenberg models with anisotropic constant as a parameter (Spin = 1/2) were solved exactly with the aid of group theoretical technique by using a very high speed computer.

We have corrected some errors in the results which had been obtained by Serber and Dresselhaus for the isotropic simple cubic 2×2×2 lattice.

The zeros of the partition functions of the finite Heisenberg systems such as 1×3, 1×4, 1×6, 1×8, 3×3 and 2×2×2 as a function of anisotropic parameter have been investigated both in the complex temperature plane and in the complex magnetic field plane.

We have also obtained the numerical results of thermodynamic functions (such as energy, specific heat, magnetization and susceptibility) for the above finite

systems.

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スピン系の動的臨界現象

（岡本寿夫）

一般化された連分数の形に展開された緩和関数を用いて，強磁性体及び反強磁性体の臨界点近傍における動的振舞，特に Sloppy Spin Wave についての知見を得ることを試みた。

しかし，連分数を打ち切る方法が適切でなかったため，予期したような結果が得られず，連分数展開の近似法を再考察する必要に迫られ，現在に到っている。

磁性体における異常緩和現象

（富田和久）

中性子非弾性散乱強度曲線の転移点近傍における振舞，その線巾及線型（いわゆる Sloppy Spin Wave を含む）の定量的評価を磁気緩和の一般理論に基いて行なった。得られた結果の一部は昨秋の統計力学国際会議及今春の学会において発表した。詳細な報告は目下準備中である。

発表論文

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